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★ KEEP ★ pg 10 & 12

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STAGING · RENTAL · OPERATIONS

INSIDE

LED: The Big Picture

Selecting a Show Control System

Loudspeaker Solutions

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Small Venues, Foolproof Sound

OK, you have to bring extra AC cables, but where's your amp rack?

Yamaha's MS400 speaker delivers 400W of power in a small, lightweight design.

IT'S BEEN MORE THAN 25 YEARS since people first started exploring self-powered option PA systems for live sound. Today, companies like Anchor, D.A.S., EAW, EV, JBL, Mackie, Meyer Sound, Peavey, Turbosound, Yamaha, and Yorkville, among others, routinely provide portable PA systems suited to the needs of smaller venues. Even so, people still have doubts about dropping passive in favor of self-powered systems. They also have a myriad of issues to consider when renting or purchasing a powered system.

In this column, I'll examine some of the concerns of rental houses and sound companies, and review some general needs of those working smaller events or shows. By "small," I mean gatherings of 100 to 500 people.

Why Powered Speakers?

Powered speakers for small PA needs aren't new. Introduced more than 20 years ago, Yamaha's A 4115 keyboard monitor was an inexpensive setup, with the right power and crossover. Anchor was also an early company to set up small powered systems, and many industry pros are quite familiar with JBL EON systems, which come in passive and active flavors. They are often associated in the minds of many with the term "portable PA."

The main advantage of powered speakers is ease of use. The plug-and-play approach means that neophytes and musicians with little technical background can operate a system, and run less risk of damaging it due to errors. Powered speakers worth their salt will include an active crossover that addresses EQ issues, time alignment, and ways to avoid frying the speaker. Plus, the amplifier will be properly matched to the driver. Perhaps all these concerns will mean nothing to folks showing up to rent two speakers and a mixer for a backyard gig, but they'll mean everything to the guy who owns the system and wants to see it returned to the shop in decent shape.

Smaller, self-powered systems come in handy for large weddings or shopping center gigs, where you don't want the expense of paying an engineer to run the system or have to troubleshoot. Additionally, the availability of relatively inexpensive options means that some rental houses that can manage it may not need to charge insurance when these boxes go out. This cuts a break to those needing a simple solution that a pair of powered 15s can adequately handle. It also earns the rental house a return customer, in all likelihood.

The JBL EON15 is another lightweight yet powerful speaker system.

The first and most obvious disadvantage of powered systems is that if you lose an amp, you lose the box. Several designs have built-in limiters, but that's not a fail-safe in all situations. For someone working a gig with two boxes for mains, it's not a bad idea to have a third, just in case. This means being ready to haul it up and down stairs and those "portable" speakers can be *heavy*. But, it's either that or risking the show. Besides, if you were opting for a passive system, you'd have backup amps and already be carrying a rack of power amps and crossovers. And, since you have to buy ancillary components to drive and image the speaker, cost comparison may not be as great an issue.

One of the early proponents of self-powered systems is Al Siniscal, founder of A-1 Audio, Las Vegas. He presented the first paper on bi- and tri-amplification at the AES convention in 1971, and he came out with the Vertically Integrated Power (VIP) system soon after that. Siniscal may also have been the first to use self-powered speakers on an international tour, as he did with the Doobie Bothers in 1974.

"Because I had the power amps mounted right in the back of the cabinets, there was only three feet of wire between the BGW 750A and the transducer," Siniscal recalls. "The attack was terrific, with better clarity. Shorter leads improved the damping factor, and we didn't experience the line losses or impedance problems common with long pieces of wire."

Drawbacks

There are issues involved with self-powered systems, of course.

"The biggest problem when you have separate power amps, processors, crossovers, and speakers is the actual connection of the items," Siniscal explains. "In general, if you're doing smaller piece rentals, it's still simpler to opt for 'This is where the signal goes, plug it in over there.' The simplicity of powered systems, wired correctly, almost outweighs any deterrent issues."

Another problem might be the lack of consistency found in the field when powering systems. Siniscal recalls a manufacturer symposium at the 1992 AES Convention where dealers and engineers were asked about how they powered a popular speaker in smaller markets.

"By the time we got around the room, there were all sorts of things people used to power the speakers," he says. "These would include cheap, high-frequency amplifiers without overhead capabilities or dynamic range. They used all kinds of off-brand crossovers and processors. They wouldn't necessarily use the big enough amplifier for the low frequencies, but they were out there competing. The preponderance of people didn't power the speakers correctly, nor use the processors that the factory recommended. These were music-store items, unbalanced, typically marginal units."

Even so, some users might complain about not being able to personally tune the speaker.

"For the five guys that can tune it, there's another 95 that will screw it up," Siniscal points out. "We've had that happen lots of times. We send a system out from the shop floor, someone starts tweaking, lost where they were, and we have to send someone out to deal with it."

A rental shop also has basic inventory concerns, adds Mitch Hodge, account executive at AVHQ in Los Angeles.

"You could argue one of the benefits of self-powered systems is that you can put together whatever size system you need, without having to build amp racks, which may not make sense for different applications," says Hodge. "If you need a small set of speakers for 100, why tie up an amp rack that is equipped to drive several speakers? Then you have six speakers sitting at a shop that can't do anything because your power is out."

One benefit that will appear more obvious in high-quality, small-powered systems is that their detailing of the sound image tends to show flaws in the equipment hooked up to it. That gives you a better idea of how your sound is being colored. This, in turn, presents the opportunity to refine one's rental inventory, while educating the user at the same time. Also, if the client is mixing from the stage, some powered speakers have peak LEDs mounted on the back of the cabinet for an easy glance and adjustment.

One caveat: Don't expect all smaller systems to perform well at high SPLs, although some can. Many small-powered systems are underpowered for the job, and can sound stressed when pushed. Some are better for intelligibility of the voice, others for imparting a warm sound. This can be a subjective area, of course, depending on the listener.

In the end, you need to rest your reputation on something that is proven reliable. This means testing whenever possible until you can match sturdiness with sound quality. But the right, small-powered system can provide smooth, clear sound quality with potentially fewer hassles for the rental company. The balance rests in evaluating your needs and knowing the requirements, as well as the technical skills of your client base. ■

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